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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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## MANUFACTURED ABRASIVES IN THE FOURTH QUARTER 1997

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Except where noted, the quantities given below are in metric units.

### Fused Aluminum Oxide

Production data for the fourth quarter of 1997 were collected from four companies operating eight plants in the United States and Canada. Estimated and reported production of regular-grade fused aluminum oxide in the fourth quarter was 25,500 metric tons valued at \$9.4 million, or \$370 per ton. Production during the same period of 1996 was 28,100 tons valued at \$9.9 million, or about \$351 per ton. Output of high-purity fused aluminum oxide in the fourth quarter was withheld from this report in order to protect company proprietary information. Production early in 1997 was 3,540 tons valued at \$2 million, or \$573 per ton.

Production of regular-grade fused aluminum oxide during 1997 was significantly less than in 1996. Low-cost imports of fused aluminum oxide from China appear to be a factor influencing the decline. The output of regular-grade fused aluminum oxide in 1997 was 93,500 tons valued at \$34.6 million; production in 1996 was 127,000 tons valued at \$44.9 million.

According to the Bureau of the Census, 1997 imports of crude fused aluminum oxide through November were 83,800 tons valued at \$37.5 million, or an average of \$447 per ton. Of the reported imports, 79% was from Canada. Imports of refined and ground fused aluminum oxide during the same time period were 45,500 tons valued at \$33.1 million, or \$727 per ton. The top five countries exporting the largest quantities of refined and ground material to the United States, in descending order, were China (60%), Austria (14%), Germany (14%), Canada (7%), and Italy (4%).

Exports of fused aluminum oxide through November 1997 were 10,100 tons. The exports were valued at \$17.1 million, or \$1,680 per ton.

As of October 1, 1997, the National Defense Stockpile operated by the Department of Defense contained 142,000 tons of crude fused aluminum oxide valued at \$18.2 million and 25,800 tons of fused aluminum oxide abrasive grain valued at \$8.8 million. All of the crude material and abrasive grain in the stockpile is authorized by law for disposal. During the fourth quarter of 1997, the Department of Defense sold 13,600 tons of crude fused aluminum oxide and 1,380 tons of fused aluminum oxide abrasive grain. Sales of more crude material and abrasive grain are planned for 1998.

### Silicon Carbide

The USGS collects silicon carbide production data from three companies operating three plants in the United States and Canada. Production in the fourth quarter was 16,900 tons at an estimated value of \$9.7 million. Production of silicon carbide in 1997 was less than in 1996. Output has declined in recent years as imports have increased.

Imports of crude silicon carbide through November 1997 were 206,000 tons valued at \$68.7 million. Imports from China were 168,000 tons valued at \$45.5 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$615 per ton. The average price of Chinese crude was \$271 per ton. Imports of refined and ground silicon carbide for the same period were 23,800 tons valued at \$28.3 million, or \$1,190 per ton. During the period, China and Canada were the largest suppliers of crude material, furnishing almost all of the tonnage with shares of 82% and 12%, respectively. In descending order, China (58%), Brazil (10%), Norway (10%), Canada (7%), and Germany (6%) were the largest suppliers of refined and ground silicon carbide.

Exports of crude silicon carbide through November 1997

were 2,580 tons valued at \$3.1 million. Exports of refined and ground silicon carbide were 12,700 tons valued at \$11.2 million.

As of October 1, 1997, the National Defense Stockpile contained 12,400 tons of silicon carbide valued at \$2.7 million. However, existing legislation authorizes the disposal of all silicon carbide in the stockpile. The Department of Defense sold 1,630 tons of stockpiled silicon carbide during the third quarter of 1997; additional sales are planned for 1998.

### **Metallic Abrasives**

Metallic abrasives information was collected from thirteen companies operating fourteen U.S. plants. During the fourth quarter of 1997, U.S. production of steel shot and grit was 63,800 tons, a 7% increase compared with the same period in 1996. Fourth quarter production was valued at \$27.9 million or about \$438 per ton. Total annual output in 1997 was 262,000 tons valued at \$115 million; production in 1996 reached 240,000 tons valued at \$106 million.

Shipments of steel shot and grit in the fourth quarter were 64,700 tons valued at \$29.2 million, or \$452 per ton.

Shipments during the fourth quarter of 1996 were 59,200 tons valued at \$26.9 million or \$454 per ton.

Estimated fourth quarter production of other types of metallic shot and grit (cut wire and reclaimed shot and grit) were 597 tons valued at \$3.2 million. Estimated shipments for the fourth quarter were 571 tons valued at \$3 million.

Imports of all types of metallic shot and grit through November 1997 were 21,500 tons valued at \$11.3 million, or \$525 per ton. Canada was the largest supplier, accounting for 90% of the tonnage imported.

Exports of all types of metallic abrasive through November 1997 were 24,100 tons valued at \$15.9 million, or \$658 per ton. Exports for 1996 were 24,900 tons valued at \$15.2 million, or \$609 per ton.

If you have suggestions about how we can improve this report, please call (703) 648-7721.
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TABLE 1  
MANUFACTURED ABRASIVES 1/

(Metric tons unless otherwise specified)

Source and product	1996		1997							
	Fourth quarter		First quarter		Second quarter		Third quarter		Fourth quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada: Production										
Silicon carbide 2/	18,700	\$9,470 e/	18,600	\$9,090 e/	17,300	\$8,490 e/	15,400	\$9,260 e/	16,900	\$9,660 e/
Crude aluminum oxide:										
Regular	28,100	9,860	21,000	7,770	26,100	9,700	21,000 e/	7,730 e/	25,500 e/	9,420 e/
High purity	5,480	3,220	3,540	2,030	W	W	W	W	W	W
Total	33,600	13,100	24,500	9,790	26,100	9,700	21,000 e/	7,730 e/	25,500 e/	9,420 e/
United States: Production										
Steel shot and grit 3/	59,400	26,000	69,400	30,500	65,600	28,800	62,800	27,800	63,800	27,900
Other shot and grit e/ 3/ 4/	641	3,400	650	3,360	620	3,340	580	3,010	597	3,150
Total	60,100	29,400	70,100	33,800	66,200	32,200	63,400	30,800	64,400	31,100
United States: Shipments										
Steel shot and grit 3/	59,200	26,900	69,000	31,200	66,100	29,800	64,000	28,800	64,700	29,200
Other shot and grit e/ 3/ 4/	640	3,390	624	3,290	616	3,290	581	3,030	571	3,000
Total 3/	59,800	30,200	69,700	34,500	66,700	33,100	64,600	31,900	65,200	32,200

e/ Estimated. W Withheld to avoid disclosing company proprietary data.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes materials for metallurgical uses and other applications.

3/ Data prior to the fourth quarter 1997 have been revised.

4/ Includes cut wire shot and reclaimed shot and grit from primary producers.